1-1-2011

How Green Are Climate Change Issues?: An Auditor's Perspective

Maya Purushothaman
Edith Cowan University

Ross Taplin

HOW GREEN ARE CLIMATE CHANGE ISSUES? : AN AUDITORS PERSPECTIVE

ABSTRACT

Climate change and carbon emissions have become an important issue for companies, not only if companies are to maintain legitimacy as good corporate citizens but also financially with the regulation of carbon emissions and the impending introduction of the Australian Emission Trading Scheme (AETS). This paper investigates the role of financial auditors in the climate change debate. Content analysis of the websites of fifteen large auditors in Australia reveals different reactions to this issue, from reacting to proposed legislation to proposing initiatives proactively and providing guidelines for companies. Analysis of the websites from a random sample of companies audited by these auditors reveals a positive association between the level of carbon awareness of financial auditors and the companies they audit. The results highlight the important role financial auditors play in the climate change debate and suggest the reclassification of carbon issues as financial information to facilitate the financial audit process. Additionally, this would address concerns regarding the reliability of data on the National Greenhouse and Energy Reporting (NGER) website.

KEYWORDS

Audit, carbon reporting, NGER, website

1. INTRODUCTION

Climate change has surfaced as one of the most significant environmental, political and business issues of our time. The expanding regulations in Australia with the mandate of greenhouse gas emissions has renewed the interest on assurance services provided for sustainability issues (Frost & Matinov-Bennie, 2010). Although there is evidence that sustainability assurance is on the rise, this form of non financial audit is still in its infancy in Australia and throughout the world (Perego, 2009). Carbon or climate change assurance is a sub-set within the sustainability audit framework as the carbon themes fall within the environmental umbrella of sustainability.

Reporting on sustainability issues have matured in the last decade from "being ad hoc disclosures of anecdotes, to a more formalised reporting environment both for regulatory purposes and for external reporting" (Frost & Matinov-Bennie, 2010; p.5). With the increase in reporting of non financial information, sustainability assurance has been under greater scrutiny. Although the level of sustainability assurance is on the rise, there have been a number of concerns raised with the conduct and reporting associated with this non-financial assurance service (Deegan, Cooper, & Shelly, 2006; Deegan, Cooper & Shelly, 2006a; Frost & Matinov-Bennie, 2010; Perego, 2009; O'Dwyer & Owen, 2005).

The term "assurance" indicates the "process which increases the confidence people can have in a particular statement, report, or claim" (Deegan, 2006; p.332). Unlike financial audits, in sustainability assurance there are differing levels of assurance and this raises questions concerning the reliance stakeholder can place on such information (Perego, 2009). Mock (2007) found that higher level of assurance was provided by Big Four auditors than other types of assurance providers such as environmental consultants. Prego (2009, p.423) qualified the results obtained from Mock (2007) by stating that Big Four auditors provide "a higher quality of assurance in comparison with other assurance providers on aspects related to reporting format and procedures used when conducting the verification. On the contrary, assurance statements issued by Big-4 firms rank lower for aspects associated to recommendations and opinion". Prego (2009) also found that firms operating in countries with a higher sustainability profile are more likely to choose a Big Four audit firm as an assurance provider.

In Australia, the sustainability assurance market is dominated by speciality firms in clear contrast to the rest of the world where accounting firms are the preferred assurance providers (Deegan et al., 2006a; Frost & Matinov-Bennie, 2010). Frost & Matinov-Bennie (2010) found after analysing ASX 100 companies in 2009 that the "dominant standard in Australia is AA1000 followed by ISAE 3000 with the environmental or speciality firms tending to favour AA1000 and the accounting firms, the ISAE 3000". This study highlighted the quality concerns raised by Australian Big Four auditors regarding the current sustainability assurance practices. Frost & Matinov-Bennie (2010, p.11) reports comments by a Big Four auditor:

> "If we want to compete in the market we have to do AA1000 assurance, if we don't do AA1000 assurance, we can just as well give up trying to compete, it's just as simple as that.' He also comments that 'we would never do AA1000 on its own and we didn't think it was professional enough."

This resonates with the rest of the world but more so in Australia as more companies are using speciality firms rather than accounting firms. Frost & Matinov-Bennie (2010) concluded that in future more firms will go to accounting firms for non financial assurance in line with the new reporting requirements for emissions and energy (see NGER framework , 2008).

The lack of independence of the sustainability assurance is another common area of concern in the literature. This issue evolved around the recipients of the assurance service, assurances services provided and the depth of work performed. The addressee on the assurance statement/report varies widely with instances when internal management were cited as the recipients of the audit (Owen & O'Dwyer 2005; Deegan et al. 2006a). Generally assurance services were provided for the benefit of external rather than internal stakeholders and if the recipients of the audit are internal to the organisation, this questions the reliability, usability and purpose of the assurance service. In addition, the audited company can decide the extent of the assurance service that they require which opens the possibility that companies may purposefully exclude areas from the audit due to non compliance (Deegan et al., 2006). Past studies have also noted that 'conflict of interest' situations were also prevalent in sustainability assurance. This issue stems from the concern that assurance providers were performing management functions and management were controlling the assurance process.

Overall there seems to be a 'lack of clarity' when it comes to sustainability assurance (ACCA, 2004). The issues addressed range from the level of assurance provided, to the opinions given, scope of the work done, the addressee on the report and standards applied in doing the assurance work. In most instances, the benchmark used to assess the weaknesses is the standards set by financial audit system. These problems have been present for the last decade but with the changes in carbon regulation, there is renewed interest on the problems as well as additional concerns. Under National Greenhouse and Energy Reporting (NGER), companies that emit 125 kilotonnes CO_2-e of greenhouse gases or use 500 terajoules of energy must provide information pertaining to the greenhouse gas emissions or energy usage for that year. These corporations must provide their usage data (1 July to 30 June) by the end of October 2009. This information is collated and published on the NGER website. Each year the acceptable emission levels are decreasing so more companies will be liable to report this information. The quantification of greenhouse gases reported through NGER will form the basis for permit liability under the Carbon Pollution Reduction Scheme (CPRS), the Australian version of the Emission Trading Scheme (ETS). Assurance on emissions and energy information is mostly voluntary at this stage.

The role of the financial auditor in this green revolution is sometimes unclear. Under the NGER regulations, financial auditors are refrained from providing carbon and financial assurance services to the same clients due to conflict of interest. This was done to safeguard the interests of the company and the stakeholders. Although carbon issues have a strong environmental undertone, in reality energy and greenhouse emissions have an even greater impact on the financials of the organisation. Therefore, carbon audits may not be mutually exclusive from financial audits, and as such there are a number of overlapping issues that have to be addressed by both financial and green auditors.

Firstly both the financial and green audits adopt a risk based methodology which includes performing risk assessments by either commissioning a test of systems or using procedures designed to detect misstatements (refer to NGER Regulation, 2008). In addition, the financial auditor will need to assess inherent risk and highlight to their clients when and if their carbon practices or non practices contravenes the competitive or strategic position of the business as this may have going concern implications. It is a

requirement for financial auditors to addresses weaknesses in the business and report to management via a formalised process (Mock, Strohm, & Swartz, 2007).

This risk assessment approach for financial audit also has to take into account Principle 7 of the Australian Securities Exchange (ASX). The principle expands on material business risk to include non financial risks such as environmental and sustainability risks. Listed companies should report against these risks in their annual reports highlighting the applicability of such risks to the business. Although the disclosures on these risks are not mandated, it is for listed entities to disclose and explain the extent to which they have not followed the recommendations set out in the Principles, and give reasons for not following them if that is the case (Deloitte Touche Tohmatsu, Crabb, & ASXMS, 2009). Since climate change issues fall within the ambit of social and environmental risk, the disclosures made pertaining to these issues would have to be assessed for 'true and fair' representation of the business.

The Corporations Act requires directors to report on the company's performance in relation to environmental regulation where the entity is subject to any 'particular and significant regulation' under Commonwealth, State, or Territory law. Therefore any disclosure made by the directors would also need to be assessed and reviewed by the financial auditors as this is part of assurance services.

The importance of including information in a financial report is based on the user's perception of materiality. Therefore, if the auditors believe that the users would be interested in the impact of climate change on the business, such as rising energy costs, they should disclose this information (refer to ASA 320).

The NGER is the foundation for the Australian Emissions Trading Scheme and when/if this cap and trade scheme commences, it will have direct implications on the financial statements of a company. PwC (2007; p.1) raised this concern directly with NGER reporting taskforce stated this trading scheme "will create a new financial market in Australia. This market will value and trade in carbon dioxide equivalent units (CO2e) as though they were financial assets. Companies will be accounting for carbon transactions through their financial records, and reporting their carbon performance and positions in their audited financial statements." Additionally, before the AETS commences, the data

obtained by NGER will help determine the price to be charged for the trading permits and if the information is incorrect, it would mean that incorrect values will be allocated to these permits.

Considering the financial implications of climate change, audit firms will feel the pressure to incorporate climate change policies into the services that they provide but also reinforce this importance to their clients to minimise their audit risk exposure. Ultimately, if a client fails to maintain their going concern, the actions and reports of the respective financial auditors come under scrutiny. Therefore in order to provide a full assurance service to their clients, financial auditors would have to be adequately versed in climate change issues. One way to assess the importance auditors place on climate change issues is by analysing the presentation and content of carbon disclosures on auditors' websites. This will not only be indicative of how important the Australian auditors perceive climate change but also how prepared they are to advise their clients in relation to the impending changes to climate change regulation. This study posits that audit firms with a high level of carbon awareness would in turn advise their clients of the importance of preparing early for climate change regulation and direct them to the appropriate channels for support. For instance, Ernst and Young (EY) identified the importance of climate change by urging their clients to incorporate carbon policies now as a 'wait and see' approach is not an appropriate strategy in terms of climate change. By the time companies "can see the approaching carbon juggernaut with sufficient clarity to take it seriously"; it will be too late, implying substantial financial consequences [11].

Therefore this paper aims to investigate the role that auditors play in the Australian Climate Change debate via the following two research questions:

1. How much importance have audit firms placed on climate change, as indicated by the content and presentation of climate change information on their websites?
2. Is there a relationship between the level of carbon awareness of Australian Audit Firms and the level of carbon disclosures of their listed clients?

2. RESEARCH METHODS

The auditors of a random sample of 400 companies listed on the Australia Stock Exchange for year ended 2009 was obtained. The fifteen auditors appearing in this list most often were selected for inclusion in the study as the largest auditors of Australian listed companies. The Australian websites of these 15 auditor companies were examined using content analysis.

In order to determine the carbon awareness of audit firms, the content and presentation of carbon information on auditor websites was analysed. The entire website was analysed for content and presentation of carbon information including important quotes made by auditors regarding climate change. The auditor' own search engine was used to recheck that no relevant data was excluded. All broken URL links or sites under construction were excluded from analysis if they were repeatedly unavailable. All external links were excluded from analysis as this study was focusing on the Australian auditor's perspective on climate change.

The presentation of carbon information was analysed as the location and space given to carbon information will be indicative of the importance that the auditors place on climate change issues. Table 1 highlights the scores that could be attained by the audit firms based on a number of criteria used to determine their presentation of carbon information.

TABLE 1: CRITERION FOR CARBON POSITION

SCORES	CRITERIA
0	No web space allocated to carbon information
1	Minimal information pertaining to climate change in own section or carbon information scattered everywhere on auditor's website
2	Whole section is devoted to carbon information with links , media updates
3	Whole section is devoted to carbon information with links , media updates Plus the audit firms own commitment to climate change issues

Audit companies with no carbon information on their website received a score of zero. If the carbon information is scattered everywhere on the web or there was minimal information, then the auditors got a score of one. This is because information scattered everywhere on the website does indicate that although climate change is an issue to the auditor, it is still not important enough to warrant their own section on the website.

Companies receive two points if a whole section was devoted to carbon information, be it the services that they offer in relation to climate change and any extra information pertaining to the climate change debate. Audit companies get a score of three if the audit firms disclose their own climate change performance.

The second score that audit companies receive is for the carbon content. This is determined using content analysis and the unit of analysis is 'words'. Repetitions of whole sections were excluded from analysis. A keyword search was conducted for the specified carbon terms. The carbon terms selected to determine carbon content on the websites are as follows, 'Carbon', 'climate change', National Greenhouse Energy Reporting 'NGER', Carbon Pollution Reduction Scheme 'CPRS', 'energy', Emission Trading Scheme 'ETS' or Australian Emission Trading Scheme 'AETS', 'emission(s)' and 'greenhouse gas'. These words embody the climate change issue. The words 'NGER'', 'CPRS' and 'ETS' or 'AETS' all refer to impending carbon regulation and can be classed as reactive words. It was important to have these acronyms in the list as the reference to these words would indicate the level of discussion on carbon regulation on auditors website compared to general carbon discussion which will be captured by the other words on the list. A reactive score equal to the number of reactive words divided by the total number of keywords was given to each audit company. This score will be indicative of how audit firms react to carbon regulation: values close to 1 indicate highly reactive while values close to 0 indicate minimally reactive.

To investigate relationships between auditors and the carbon disclosures of their client companies, this study utilised the carbon indicators from the Global Reporting Initiative (GRI). The GRI provides a widely accepted framework for carbon reporting (Brown, Jong, & Lessidrenska, 2009; Frost, Jones, Loftus, & S.V, 2005; Global Reporting Initiative, 2006; Roger & Michael, 2007). The voluntary nature of the Guidelines means that organisations have flexibility in deciding what non-financial information to disclose. The Guidelines are designed to be suitable for organisations with varying degrees of complexity and include Core Carbon indicators (CC) and Additional Carbon indicators (AC). This study uses the indicators from the emissions and energy category, EN3, EN4, EN 16, EN 17, EN 19 and EN 20 under Core Carbon and EN 5, EN 6, EN 7 and EN18 under Additional Carbon (see Table 2).

Table 2: INDICATOR CATEGORIES

INDICATORS	DESCRIPTIONS
CORE (CC)	
EN 3	Direct energy consumption by primary energy source.
EN 4	Indirect energy consumption by primary source.
EN 16	Total direct and indirect greenhouse gas emissions by weight.
EN 17	Other relevant indirect greenhouse gas emissions by weight.
EN 19	Emissions of ozone-depleting substances by weight.
EN 20	NOx, SOx, and other significant air emissions by type and weight.
ADDITIONAL (AC)	
EN 5	Energy saved due to conservation and efficiency improvements.
EN 6*	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.
EN7*	Initiatives to reduce indirect energy consumption and reductions achieved.
	EMISSIONS
EN18*	Initiatives to reduce greenhouse gas emissions and reductions achieved.

* EN 6, EN 7 and EN 18 are all narrative rather than quantitative

For the purposes of this study, the disclosure index method is adopted to measure carbon disclosures of companies (refer to Pirchegger and Wagenhofer, 1999; Ettredge et al., 2001; Larra´n and Giner, 2002; Marston and Polei, 2004 ; Petersen and Plenborg, 2006). With the exception of EN 6, EN 7 and EN 18 these indicators require quantitative disclosures so coding as 1 for disclosure and 0 for non-disclosure captures the carbon information crucial to calculate the carbon footprint of a company (see GRI 2006). Therefore regardless of the number of sentences, words or paragraphs companies use to present their emission data, the focus is on that numeric data that defines the emission output of the company for that year (refer to Freedman & Jaggi, 2011). For the indicators, EN 6, EN 7 and EN 18, companies need to provide details on initiatives that are being implemented to receive a score of 1. For example, general statements such as 'we are planning to reduce our carbon footprint' is not adequate as details supporting this statement on how this will be achieved is what will earn them a score.

The Core Carbon (CC) and Additional Carbon (AC) indices equal the proportion of the core and additional indicators disclosed respectively while the Total Carbon (TC) index equals the proportion of all ten indicators disclosed. Mean disclosure indices (TC, CC and AC) were calculated for the companies audited by each to the fifteen auditors. Differences between auditors were tested with one way ANOVA and significant differences between pairs of auditors calculated with a Bonferroni correction to control the probability of false positives. Correlations were used to test for relationships between the mean disclosures of listed companies and the presentation and content scores of the auditors.

3. RESULTS

The results for the presentation and content scores are depicted in Table 3 and discussed below. There is a significant correlation ($r = 0.868$, $P < 0.001$) between the content and presentation scores received by the audit firms.

TABLE 3 CARBON CONTENT ON AUDITOR'S WEBSITE

	PRESENTATION SCORE	CONTENT SCORE									
		DESCRIPTIVE CARBON WORDS					REACTIVE WORDS				
		Carbon	Climate Change	Emission(s)	Energy	Green house	NGER	CPRS	ETS /AES	Total Content Score	Reactive Score
PwC	3	212	140	97	56	46	95	65	23	734	0.25
KPMG	3	152	111	76	72	48	46	82	27	614	0.25
Ernst & Young	2	124	136	89	23	34	41	50	27	524	0.23
Deloitte	2	136	102	91	61	52	56	72	31	601	0.26
Bentleys Australia	2	10	8	8	5	3	3	4	1	42	0.19
RSM Bird Cameron	2	53	44	52	32	21	48	56	18	324	0.38
BDO	1	22	28	13	6	4	8	6	0	87	0.16
Moore Stephens	1	36	32	24	18	20	28	44	5	207	0.37
PKF	1	8	0	0	0	0	12	13	9	42	0.81
Grant Thorton	1	10	4	8	5	2	12	11	1	53	0.45
William Buck	1	18	16	12	8	6	26	24	8	118	0.49
Pitcher Partners	1	10	8	9	6	0	15	16	7	71	0.54
HLB Mann Judd	0	2	1	1	0	0	0	0	0	4	0
WHK Horwath	0	0	0	0	0	0	0	0	0	0	NA
Stantons International	0	0	0	0	0	0	0	0	0	0	NA
Total		793	630	480	292	236	390	443	157	3421	0.29

PricewaterhouseCoopers (PwC) and KPMG attained the maximum presentation score as they not only identified climate change issues as a service they can provide but also accounted in detail for their own carbon commitment as part of their social responsibility. PwC was also "awarded prestigious international recognition as the 'Best Advisory/Consultancy' in the area of Greenhouse Gas Emissions in Australasia by Environmental Finance Magazine, 2008 market survey" [1]. PwC reinforced their carbon commitment by being "the first of the Big 4 professional services firms to make the commitment to become carbon neutral" (PwC, 2010). KPMG became the first of the 'Big Four' professional services firms to receive the Australian Government's *Greenhouse Friendly*™ certification [2]. It is interesting to note that both these audit firms wanted the recognition of being first, PwC for committing to become carbon neutral and KPMG for getting the certification first. Both the audit firms became carbon neutral on the 1 July 2008.

EY and Deloitte received a score of two, recognized that tackling climate change issues is an important issue and also listed climate change as part of the services that they offer. All the Big Four audit firms have included information that top management can use when considering climate change issues. This is evident through the reports or publications released to aid their client through their 'carbon confusion'. For instance KPMG released a report entitled 'Managing Financial Impacts and Reporting of Carbon Emissions – A guide for CFOs', while Deloitte released guidance document 'Four key carbon reporting challenges for Australian business'. The fact that these audit firms have commissioned these reports and spend resources on the issue indicates the significance that they are placing on climate change issues.

All the Big Four Audit firms had a higher carbon disclosure level that the smaller audit firms. PwC was leading the carbon disclosures on their website followed by KPMG, Deloitte and finally EY. The fact that PwC had the highest carbon information on their website was not surprising as they had documented in detail regarding their own carbon footprint as well as information pertaining to climate change issues that will aid their clients with carbon reporting and accounting. The carbon counts for the other three Big Four audit firms were relatively close. The Big Four audit firms reinforced the importance of carbon issues by linking the introduction of the CPRS to current

accounting issues such as accounting for provisions and impairment of assets in relation to the introduction of the CPRS.

RSM Bird Cameron and Bentleys were the only two non Big Four firms that received a score of 2 for presentation which made them comparable to two of the Big Four auditors. The climate change information on the RSM Bird Cameron website was difficult to find as it was embedded under many layers of information [3]. The search engine on their website was also misleading as a number of searches were made regarding climate change and carbon issues and all searches came back with zero hits. This was misleading as there was a substantial amount of information pertaining to this issue.

Although both RSM Bird Cameron and Bentleys had similar score for presentation, there was a significant difference between their carbon scores. RSM Cameron had almost eight times the content that Bentleys Australia did. This could partly be because Bentleys Australia acknowledged the importance of climate change issues and their way of assisting their clients is by collaborating with leading global carbon management company, Carbon Planet, to to assist their "clients to navigate through the complexities of the regulations and requirements" [4]. The website for Carbon Planet was hyperlinked to the Bentley's website. Carbon Planet offered a wide range of services ranging from assurance services to services relating to trading carbon credits. Bentleys did not receive any points for the carbon information on Carbon Planet's website as this was classed as an external link. RSM Bird Cameron also uses the services of a carbon management company but they still provided their own information regarding climate change issues on their website [5].

Seven of the fifteen audit firms only received a presentation score of 1 , meaning that the carbon information on their website was minimal. It was surprising to see Grant Thornton among this group of auditors. They have indicated that they are the "fifth largest accounting network in the world"[6]. Grant Thornton had a small section on services provided for climate change with no further elaboration and one carbon publication. PKF had numerous brochures reiterating the same carbon information. They also provided information in their newsletter pertaining to carbon issues but on

further analysis it was noted that carbon issues was only a side issue and their main focus was that the Good and Service Tax (GST) rules will change when CPRS is introduced [7].

William Buck offered carbon accounting services but this information was locked to users with passwords. There were, however, some publications and information flyers relating to the climate change issue.

Pitcher Partners limits their offering of accounting and auditing climate change issues to their Melbourne office. They have several publications to address climate change issues but the information provided was minimal [8].

HLB Mann Judd's website was interesting for two reasons. Firstly, they like PwC did provide information about being carbon conscious and they focused on using "100% green power reducing the firm's carbon emission from electricity consumption to zero"[9]. They were also certified as a "Waste Wise organisation (Silver level); having completed the requirements of Sustainability Victoria's Waste-Wise Business efficiency program." HLB Mann Judd also provided carbon services but it was directed at the Printing, Paper & Packaging industry. HLB Mann Judd have focussed on this industry as they "have a detailed understanding of the structures and profit drivers of printing businesses, allowing us to provide practical advice and assistance in optimising company profits whilst minimising their carbon and environmental foot-prints.[9]." This is a similar practice to the BDO auditors as they are providing carbon services to mining and the oil and gas industry.

WHK Howart and Stanton International did not provide any carbon information on their websites. This was rechecked using the company's own search engine and for both companies, the searches produced no results. Both these companies had very basic websites which could account for the lack of carbon information.

Generally, the results received for the presentation score tend to correlate to the content score but this was not the case for Moore Stephen and William Buck. William Buck, was awarded a score of 1 for presentation as the carbon website was locked to users but their content score was relatively high due to their publications and information flyers relating to the climate change issue. Moore Stephen had minimal information when describing

their carbon emissions services but similar to William Buck, the company had numerous publications on climate change and its impacts [10].

The results highlight the diversity in the reactive scores for the smaller audit firms compared to the Big Four auditors. The Big Four audit firms seem to have similar content scores as well as reactive scores unlike some of the smaller audit firms. Six out of the fifteen audit firms had a higher proportion of reactive words such as 'CPRS', 'NGER' and 'ETS" than the words 'carbon' and 'climate' compared to the Big Four auditors. One reason could be some of these smaller firms do acknowledge the importance of climate change issues but their focus is on new regulation. For instance, Grant Thornton had only one publication entitled "Carbon causing Consternation" which was published in Nov 2008 and this information seem tailored in response to the expected implementation of CPRS. This information has not been updated since then. This could be related to the numerous delays announced by the Australian government with the implementation of CPRS and therefore companies like Grant Thorton may be delaying their carbon disclosures till they know when the actual implementation date is [7].

Most audit firms highlight their abilities to help with climate change issues as a marketing tool to promote new business for the organisation as well as to help current clients. For instance, Deloitte has detailed how they can assist clients and why it is necessary to embrace carbon accounting. .They go on to add that "while others are offering 'hypothetical' solutions to future problems, at Deloitte, we're not focused on what might happen, but on working with you to find solutions that benefit your business now"(Deloitte Tohmatsu, 2009a)

Table 4 compares the disclosures by the fifteen audit firms with the mean level of carbon disclosures made by the companies they audited. Correlations between the content and presentation scores and carbon disclosures of companies were 0.546 and 0.583 respectively ($P < 0.001$). The significant results indicate that there is a relationship between the content and presentation scores received by the auditors and the carbon disclosures by their clients. The mean index values (TC, CC and AC) differ significantly by auditor ($P < 0.001$, oneway ANOVA).

General trends of disclosure highlight that companies are disclosing more additional carbon information that core carbon. This is in line with studies that found that environmental disclosures in general in Australia tend to be more narrative than quantitative (CDP, 2007). This trend (AC-CC > 0) extends to all auditors (except Stanton International whose clients make no disclosures of core carbon or additional carbon.

TABLE 4: Comparison of Carbon Position of Auditors to Carbon Disclosures by Audited Listed Clients

Auditor	Auditor disclosure			Client disclosure				
	PS	CS	Reactive Score	N	TC Mean	CC Mean	AC Mean	AC-CC Mean
PwC	3	734	0.25	53	0.690	0.583	0.816	0.233
KPMG	3	614	0.25	47	0.465	0.329	0.750	0.421
Ernst & Young	2	524	0.23	46	0.402	0.239	0.673	0.434
Deloitte	2	601	0.26	36	0.511	0.386	0.611	0.225
Bentleys Australia	2	42	0.19	12	0.210	0.143	0.250	0.107
RSM Bird Cameron	2	324	0.38	13	0.469	0.385	0.615	0.230
BDO	1	87	0.16	22	0.172	0.103	0.111	0.008
Moore Stephens	1	207	0.37	12	0.133	0.112	0.154	0.042
PKF	1	42	0.81	10	0.035	0.010	0.067	0.057
Grant Thorton	1	53	0.45	20	0.250	0.215	0.286	0.071
William Buck	1	118	0.49	12	0.177	0.161	0.183	0.022
Pitcher Partners	1	71	0.54	12	0.058	0.024	0.076	0.052
HLB Mann Judd	0	4	0	11	0.050	0.036	0.083	0.047
WHK	0	0	NA	10	0.070	0.058	0.081	0.023
Stanton Int	0	0	NA	10	0.000	0.000	0.000	0.000

N = number of sampled companies (clients) for each of the fifteen auditors.

PwC's clients have the highest mean level of total carbon disclosures (0.690) compared to all the other auditors. The Bonferroni results confirm that PwC results are significantly different to all the other audit firms ($P < 0.05$). This is due primarily to the high core carbon disclosures by clients of PwC relative to the other auditors. This is consistent with PwC's carbon presentation and carbon content score. The results indicate that clients who hired PWC tend to have a higher level of carbon information. There are a number of reasons that could account for this. Firstly PwC auditors strong content and presentation score emphasizes the importance they place on climate change which is reinforced by their attitude towards carbon reporting being "one of the most powerful means available for companies that are committed to the sustainability agenda to win over sceptical stakeholders" (PwC , 2009). Alan McGill, partner in the Sustainability and

Climate Change Reporting division at PwC International stated that part of the carbon reporting strategy is that companies should not focus on just" compliance and data reporting alone, forward-looking analysis and statements of the risks and opportunities affecting a business will become an established part of the reporting cycle, (BusinessGreen, 2009). These forward looking statements can be viewed as strategic disclosures as it shows that the companies are thinking about the carbon issues without actually incurring the costs. PwC core mean score does indicate that the firms that they audit are producing more core data than the other sampled companies but their additional disclosures still dominates over core disclosures.

In addition to encouraging firms to report their carbon disclosures, PwC has provided everyone with a free template on a best practice guide for carbon reporting which was released in 2009 to help firms report on their carbon emissions in accordance with the UK government's new Carbon Reduction Commitment (CRC) (BusinessGreen, 2009). This free template will support companies' preparations by helping them identify the right questions to ask, the right data to measure and report on, resulting in them taking the right actions for their business. This may be viewed as an instrumental tool for companies in their carbon infancy.

Three of the Big Four auditors (KPMG, E&Y and Deloitte, but not PwC) and RSM Bird Cameron have means of TC that do not differ significantly ($P > 0.05$, Bonferroni corrected). This is followed by Grant Thornton and Bentleys Australia. Within the Non Big Four auditors, both Bird Cameron and Bentley's clients have a high disclosure level and this could be because they are able to audit and assist the carbon queries from the clients regarding climate change with the help of their own team of carbon experts.

Grant Thornton received a low presentation and content score based on their Australian website but their clients had a high level of carbon disclosure (0.152 to 0.298). On further analysis of the Grant Thornton global website, it was noted that in January 2007, Grant Thornton became the first organization within the accountancy and financial services industry in the UK to offer a carbon dioxide offsetting scheme to its employees and customers. They were going to introduce this scheme to their 25,000 plus clients which aims to offset carbon emissions in addition to their own efforts in reducing their own carbon footprint. Although Grant Thornton's Australian website indicates minimal

carbon activities, in reality the organization is quite actively involved in the carbon crisis and they are assisting their clients to reduce their carbon footprint, which in essence may explain the clients' carbon disclosures.

4 CONCLUSION

The results of this paper highlight some important implications for Australia as well as the rest of the world. The link between listed companies that have a higher carbon disclosure and their respective audit firms reinforces the important role that financial auditors play in the climate change debate. With the collapse of Enron, there has been considerable focus on the work performed by the auditor, specifically precluding them from any management functions, an issue also raised with sustainability assurance. These results do not reflect a breach in the relationship but reinforces the financial nature of carbon reporting. Accounting firms and their clients alike cannot adopt a 'wait and see' approach regarding climate change. The diversity and content of carbon information on the website of auditors highlights the different paces in which these audit firms are responding to the climate change debate. The reactive score indicates that some audit firms may be responding to climate change based on government regulatory decisions. Due to the overlapping nature of climate change on financial audits, this is not a viable option as it could eventually lead to a situation where audit firms may be providing an incomplete assurance service if they do not consider the impact of climate change on the business structure.

Deegan et al. (2005) concluded that the principle reason for the problems with sustainability assurance was the generally voluntary nature of social and environmental information which prevented a 'robust' sustainability framework. With the mandatory guidelines for carbon information in place, there are still issues with carbon assurances. The problem may not lie with the mandatory guidelines but the separation of the sustainability themes. The 'economic' theme may no longer be the only theme that has continuous financial implications for the business. The increasing focus on energy and emissions issues will eventually have continuous economic consequences for most businesses in most countries. It is unlikely that companies can avoid the impact of direct energy regulations. This is not the case for other environmental issues such as fines for environmental breaches. Companies can actively avoid a fine but it is much harder to

avoid using energy. By extending the financial audit to include the other themes, this may solve the issues that sustainability assurances have been suffering from for the last decade or so. Alternatively, this study proposes the redefinition of carbon accounting as a financial issue which allows it to fall within the scope of the financial audit. PwC reinforced these sentiments by stating "since the data will have direct financial implications for companies, for the success of the scheme, and for the economy as a whole, this assurance should be performed by experienced financial auditors" (PricewaterhouseCoopers, 2007). This suggestion for reclassification partially ties in with Zadek et al (2004) 'grey scenario' for sustainability assurance where there is a "convergence around existing standards focusing on historical data accuracy. This link to direct financial consequences would encourage moves towards monetising more areas of environmental and social capital and bringing them on to the balance sheet" (Deegan et al. 2006; p.5). Additionally, this suggestion for reclassification also reinforces the strengths of the two groups of assurance providers; the financial providers can focus on the audit methodology with relevant help from experts and the environmental groups can provide the management advice needed to set up the systems, improve systems as well as the relevant internal control functions.

Additionally, by redefining carbon information as a financial item, the financial auditors would be able to extend their audit to climate change issues and directly meet the requirements of NGER which will increase reliability of the information given. Deloitte found 'the NGER data collection process for many companies was inefficient and requires improvement to become a robust and sustainable business process" (Deloitte, 2009b). Not all reporting companies have to undergo an audit, so the information that NGER is publishing could be misleading. The NGER Act has recognized the regulatory role of the Greenhouse and Energy Data Officer (GEDO) who has specific statutory role in compliance, monitoring and enforcing provisions under the NGER Act. They use an 'intelligence system' to determine if companies are not reporting to their statutory requirements. Non compliant companies will be audited by GEDO to verify the information is correct. There seems to be a reversal in procedures for green audits compared to financial audits. Stakeholders are not expected to rely on financial information which has not been audited so why are they asked to rely on unaudited carbon information (Mock et al., 2007)? By allowing financial auditors to be involved in green audits, they can verify the NGER processes when they perform their systems

checks. This way the information submitted to NGER is more reliable and allows for valid stakeholder comparisons.

The reclassification of carbon information as financial information would also present some significant cost consequences for corporations as they would not have to hire two sets of auditors, one for the financial statements and the other for the green audits. The financial auditors and the green auditors would have to gain a detailed understanding of the client's business and control environment and this duplication of work has serious cost implications for listed companies. With the introduction of NGER, companies are already faced with the financial burden of implementing of new technology and training their staff. This additional cost of green auditing can be reduced if the financial auditors are allowed to perform both tasks as carbon assurance may be seen as an extension of financial auditing.

REFERENCES

ACCA (2004), The Future of Sustainability Assurance, Association of Chartered Certified Accountants, London

Brown, H. S., Jong, M. D., & Lessidrenska, T. (2009). The rise of the Global Reporting Initiative: a case of institutional entrepreneurship. *Environmental Politics 18*(2), 182-200.

Carbon Disclosure Project. (2007). CDP 2007 Australia & New Zealand Report Retrieved 4 January, 2009, from https://www.cdproject.net/en-US/Results/Pages/reports.aspx

Deegan, C., Cooper, B. J., & Shelly, M. (2006). An Investigation of TBL Report Assurance Statements: Australian Evidence. *Australian Accounting Review, 16*(39), 2-18.

Deegan, C., Cooper;B.J, & Shelly, M. (2006a). An investigation of TBL report assurance statements: UK and European evidence *Managerial Auditing Journal, 21*(4), 329-371.

Deloitte Touche Tohmatsu, Crabb, B., & ASXMS. (2009). Principle 7: Recognise and Manage Risk Guide for small – mid market capitalised companies.

Deloitte. (2009a). Climate Change and Sustainability group Carbon Advisory Services – Tax (pp. 1-2).

Deloitte (2009b). National Greenhouse and Energy Reporting Act 2007 (NGER) Lessons learnt. *The Australian* Retrieved from http://www.deloitte.com/assets/Dcom-Australia/Local%20Assets/Documents/Services/Assurance%20and%20Advisory/Carbon%20reporting/NGER_LessonsLearnt.pdf

Department of Climate Change (2007). National Greenhouse and Energy Reporting Act. Canberra: Australia Government.

Department of Climate Change and Energy Efficiency (2010). Carbon Pollution Reduction Scheme Bill. Canberra: Australia Government.

Department of Climate Change (2009). National Greenhouse and Energy Reporting Act: Audit Determination Handbook.Canberra: Australia Government.

Ettredge, M., Richardson, V. J., & Scholz, S. (2002). Dissemination of information for investors at corporate Web sites. *Journal of Accounting and Public Policy, 21*(4-5), 357-369.

Frost, G., Jones, S., Loftus, J., & S.V, L. (2005). A Survey Of Sustainability Reporting Practices Of Australian Reporting Entities*; Australian Accounting Review, 15*(1), 89-96.

Freedman, M., & Jaggi, B. (2011). Global Warming Disclosures: Impact of Kyoto Protocol Across Countries. *Journal of International Financial Management and Accounting, 22*(1), 46-90.

Frost, G., & Matinov-Bennie, N. (2010). Sustainability reporting assurance:market trends and information content (pp. 1-18): CPA.

Global Reporting Initiative. (2006). Sustainability Reporting Guidelines Retrieved 3 March, 2007, from www.globalreporting.org

Marston, C., & Polei, A. (2004). Corporate reporting on the Internet by German companies. *International Journal of Accounting Information Systems, 5*(3), 285-311. Mock, T. J., Strohm, C., & Swartz, K. M. (2007). An Examination of Worldwide Assured Sustainability Reporting. *Australian Accounting Review, 17*(41), 67-77.

Perego, P. (2009). Consequences of Choosing Different Assurance Providers: An International Study of Sustainability Reporting *International Journal of Management 26*(3), 412-487.

Petersen, C., & Plenborg, T. (2006). Voluntary disclosure and information asymmetry in Denmark. *Journal of International Accounting, Auditing and Taxation, 15*(2), 127-149.

Pirchegger, B., & Wagenhofer, A. (1999). Financial information on the Internet: a survey of the homepages of Austrian companies. *European Accounting Review, 8*(2), 383-395.

PricewaterhouseCoopers (2007). [Response to the National Greenhouse and Energy Reporting (NGER) System – Regulations Discussion Paper dated October 2007

Roger, S., & Michael, N. (2007). Developing An Assurance Standard For Carbon Emissions Disclosures. *Australian Accounting Review, 17*(2), 37.

Zadek,S., Raynard,P., Forstater,M., & Oelschlaegel,J. (2004), "The Future of Sustainability Assurance", Certified Accountants Educational Trust, London

[1] http://www.pwc.com.au/consulting/sustainability-climate-change/index.htm
Accessed on 21 August 2010

[2]http://www.kpmg.com/au/en/whoweare/performance/successes/australia/Pages/default.aspx
Accessed on 21 August 2010

[3]http://www.rsmi.com.au/services_/home_risk_management/services_90132/carbon_and_sustainability.html
Accessed on 21 August 2010

[4] http://www.bentleys.com.au/our_services/carbon_management_services
Accessed on 21 August 2010

[5] http://www.carbonplanet.com/?InboundDomain=www.carbonplanet.com.au
Accessed on 21 August 2010

[6] http://www.grantthornton.com.au/Publications/Newsletters/bsa_1108.asp
Accessed on 21 August 2010

[7] http://www.pkf.com.au/Services/Pages/PKFAssist.aspx
Accessed on 21 August 2010

[8] http://www.pitcher.com.au/sydney-cpn-businessconsulting.pro
Accessed on 21 August 2010

[9] http://www.hlb.com.au/getdoc/9b628ae1-6738-4f64-8a28-834279efbc54/Printing,-Paper---Publishing.aspx
Accessed on 21 August 2010

[10] http://www.moorestephens.com.au/services/carbon-emissions-services.aspx
Accessed on 21 August 2010

[11]http://www.ey.com/AU/en/Issues/Business-environment/Environmental-issues/Environmental-issues
Accessed on 21 August 2010